The impact of water salinity on the digestive capacity of European seabass fed diets containing an insect meal mixture

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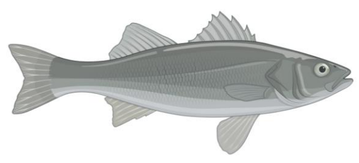
European seabass



Dicentrarchus labrax

- **Euryhaline** fish species (5-50 ppt)
- Among the most commercially farmed species in **Europe**, typically in **sea cages** or **ponds**

Osmoregulation and digestion

Water salinity has been shown to impact seabass:

Water intake · Intestinal morphology · Gene expression of nutrient transporters

However, little is known about the impact of **low water salinity** on the **nutrient digestion capacity of seabass**

OBJECTIVE

Changes in precipitation patterns have become increasingly pronounced in recent decades. Given the potential impact of intense precipitation on the salinity of water bodies, this study aims to assess how **low water salinity** affects the capacity of seabass to **digest** a **commercial-like diet** with increasing levels of an **insect meal mixture**

Hermetia illucens larvae defatted meal (ENTOGREEN) — 50% | 50% — *Tenebrio molitor* larvae defatted meal (THUNDER FOODS)

▶ Dietary inclusion: 0-8.4%

▶ Digestibility evaluation

Low water salinity: 5 ppt *vs* 35 ppt: Atlantic Ocean's salinity

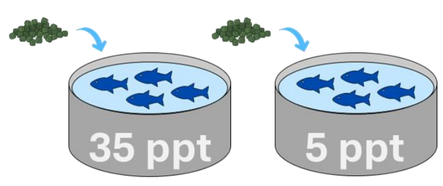
Materials & Methods

In vivo **digestibility trial** with seabass juveniles

1) **Four diets** containing 1% Cr_2O_3 were formulated:

Diet	CTRL	IM0.5	IM4.3	IM8.4
% Insect mixture, IM	0	0.5	4.3	8.4
% Fishmeal	15	14.6	11.3	7.5

2) Each diet was hand-fed 3 × daily (2% body weight) to triplicate fish groups, distributed among tanks with water at **5 ppt** or **35 ppt**

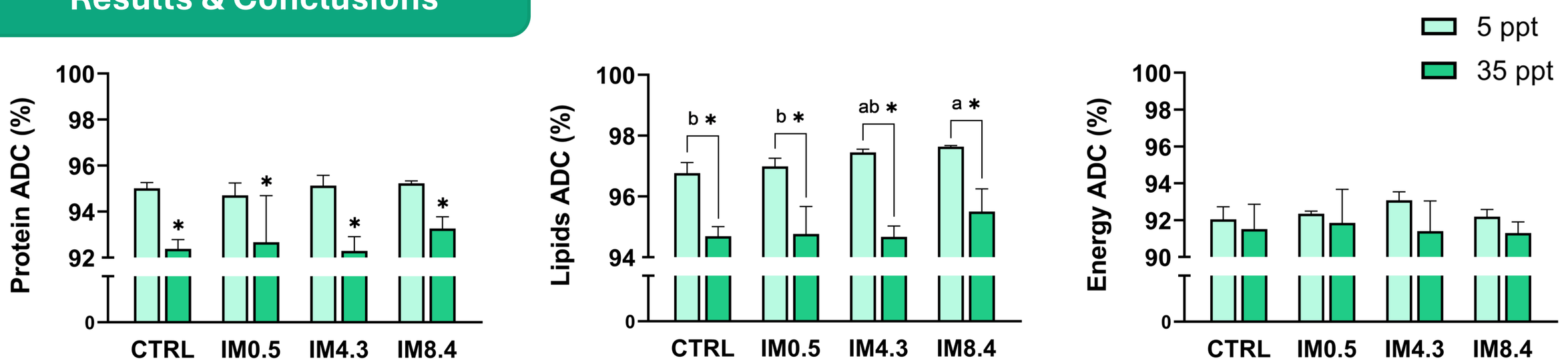


3) **Faeces** were collected once daily from sedimentation columns

4) **Feed** and **faeces** composition in **macronutrients**, **energy** and **phosphorus** was determined

5) Apparent digestibility coefficient (**ADC**, %) calculation

Results & Conclusions



- The **5 ppt** salinity promoted a **higher digestibility** of **protein**, **lipids**, and **phosphorus** than the 35 ppt salinity, independently of the diet. Still, energy digestibility was not significantly affected by rearing salinity
- IM8.4 presented **higher digestibility** of **lipids** than CTRL, but protein and energy digestibility remained similar
- IM4.3 presented **higher phosphorus digestibility** than CTRL

Statistically significant differences concerning the effect of water salinity are denoted with *. Differences concerning the impact of the diets are denoted with different letters ($P < 0.05$).

- ✓ Overall, **lower water salinity increased** the **digestibility** of diets for European seabass
- ✓ The utilization of the **IM diets** is supported independently of rearing salinity

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